LOUISIANA NATURAL AND SCENIC RIVERS SYSTEM

PERMIT APPLICATION

Permit # 906 (Assigned by Department)

The Louisiana Department of Wildlife and Fisheries' Scenic Rivers program is authorized by LRS title 56, Chapter 9 Part II. This law requires permits authorizing activities in or affecting rivers that have been designated by the Louisiana Legislature as Natural and Scenic. Information provided on this form will be used in evaluating the application for a permit. Information in this application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary, however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information is not provided, the permit application cannot be processed nor can a permit be issued.

APPLICANT INFORMATION

Name of Applicant	Comstock Resources, Inc.	Name of Agent (if any)	EcoScience Resource Group, LLC
Address	5300 Town and Country Blvd.	Address	11827 Sunray Ave.
Address	Suite 500	Address	
City, State, Zip	Frisco, TX 75034	City, State, Zip	Baton Rouge, LA 70816
Phone	972.668.8800 (Keith Lorenz)	Phone	225.755.8844 (Pete Lee)

DESCRIPTION OF THE PROPOSED ACTIVITY

Brief summary of the description and purpose of the proposed activity (details to be attached as a separate document)

Withdraw water from the Amite River into private pond storage for use in hydraulic fracturing.

Is any portion of the activity complete? YES (NO) (If yes indicate month and year of completion)

LOCATION OF PROPOSED ACTIVITY

Stream Name	Amite River	Names, Addresses, Phone Numbers of Adjacent Property Owners	
Parish	East Feliciana	Glen M. Brady	
Section	55	12362 Magnolia Lane	
Township	2S	Clinton, LA 70722	
Range	3E	225.683.5738	
Latitude/Longitude	N30° 54' 00", W90° 51' 18.2"		

ENVIRONMENTAL ASSESSMENT

Must be a separate document. See the attached instruction sheet for completing the assessment.

CONFIRMATION OF INFORMATION ACCURACY

Application is hereby made for a Scenic River Use Permit to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that, to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities, or I am acting as the duly authorized agent of the applicant.

Signature

6/30/14
Date

Form # LSR3 May 2002

EcoScience Resource Group, L.L.C.

Louisiana Scenic River Permit Application

for
Amite River Brady Intake
East Feliciana Parish, Louisiana

Prepared for

Comstock Resources, Inc.
5300 Town and Country Blvd.
Suite 500
Frisco, TX 75034

COMSTOCK RESOURCES

June 23, 2014

11827 Sunray Avenue
Baton Rouge, Louisiana 70816
225.755.8844

EcoScience Resource Group, L.L.C.

June 30, 2014

Louisiana Department of Wildlife and Fisheries Scenic Rivers Program
P.O. Box 98000
Baton Rouge, LA 70898-9000

Re: Scenic River Permit Application
Amite River Brady Intake
East Feliciana Parish
Comstock Resources, Inc.

Dear Representative:

As the agent for and on behalf of Comstock Resources, Inc., please accept this Scenic River Permit Application. An original and six (6) copies are enclosed. EcoScience check no. 39465 for the $100.00 administrative fee is enclosed. Public notice publication will be submitted shortly to the Baton Rouge Advocate and Clinton Watchman and proof will be provided later.

If you have any questions, please contact me. Thank you for your assistance.

Respectfully,

Peter B. Lee, P.G., P.H.
Principal Hydrogeologist

Cc: Comstock Resources, Inc.

11827 Sunray Avenue
Baton Rouge, Louisiana 70816
225.755.8844

1.0 PROJECT DESCRIPTION

Comstock Resources, Inc. is planning to drill and develop a well in the Tuscaloosa Marine Shale (TMS) by hydraulic fracturing. The water supply will be provided by surface water from the Amite River in East Feliciana Parish on private property. The Amite River has been designated as a Scenic River from the Mississippi-Louisiana state line to LA Hwy. 37.

The planned extraction point is designated as the Brady Intake (Figure 1) and is located at N30° 54' 00", W90° 51' 18.2". All figures are in Appendix A. The water will be pumped into a former gravel pit impoundment on private property, outside of the 100-foot Scenic River buffer, and then pumped to the well site. The surface water will be pumped from a screened intake hose by a trailer-mounted pump into a temporary discharge line to the storage pond and to the well site. The water supply required is 300,000 barrels (bbls) or 12,600,000 gallons. The pumping rate will vary from 25-80 bbls/minute or 1,050-3,360 gallons per minute (gpm). Based on these rates with constant pumping, withdrawal could be from 2.6 to 8.3 days. Pumping may be discontinuous and periodic in stages. The intake hose will be 4 to 10 inches in diameter and the discharge will be controlled by valves and/or pump speed.

2.0 PROJECT LOCATION

The Brady Intake location is depicted on an aerial photograph (Figure 2) and topographic map (Figure 3) in Appendix A. Access to the intake point of withdrawal is through a cleared pathway on private property through hardwood and pine forest to the river bank. No trees or flora will be affected by operations. Figures 4-7 are photographs of the intake on June 6, 2014.

3.0 OTHER REQUIRED PERMITS

The Louisiana Department of Natural Resources (DNR) has a Louisiana Running Surface Water Use Cooperative Endeavor Agreement with a Surface Water Withdrawal Application. This application will be submitted.

4.0 ENVIRONMENTAL ASSESSMENT

4.1 Existing Land Use

The access property adjacent to the intake is privately-owned hardwood and pine forest and former gravel pits. The land is used for recreation by the owner. Landowner contact information is in Appendix E.

4.2 Historical/Archeological Sites

The National Register of Historic Places indicates that there are thirty-two (32) sites in St. Feliciana Parish. None are near the project site according to the available information (Appendix B). A request for the presence of archaeological sites was sent to the State Historical Preservation Officer (SHPO). Since the Amite River is the boundary of East Feliciana and St. Helena Parishes, St. Helena Parish was also researched; there are two (2) sites in St. Helena Parish in Greensburg, LA and not in the project area.

4.3 Economic Impact of the Project

The drilling and production of the well will generate increases in tax revenue for the parish and state as severance taxes, ad valorem taxes and sales taxes. The well may generate drilling/production of more wells in the parish. The local population may benefit from the creation of jobs and services.

4.4 Wilderness/Rural Quality

The temporary extraction point is adjacent to private property. The Amite River has hardwood forest along the banks except at the intake point, which is open. There are no jurisdictional wetlands affected by pumping or access. There will be no excavation or land disturbance. The landowner has sole access to the intake point area. Land in this area is rural with agricultural and hunting uses. The nearest residence is approximately 4,000 feet to the south and is owned by the landowner.

4.5 Scenic/Aesthetic Value

The use of the extraction point is temporary and the site will be restored to existing condition. There is no aesthetic value except to the landowner. Access from up or downstream is limited due to shallow seasonal depth to restrict navigation (Figures 5 and 6). According to local inhabitants of the river, upstream travel is limited to jet or air boats and downstream access can also be by floating crafts such as canoes.

4.6 Recreational Use/Opportunity

This portion of the Amite River is designated as segment LA4030100 of the Lake Pontchartrain Basin in the LDEQ 2010 Louisiana Water Quality Inventory. Designated water body uses are primary contact recreation (swimming), secondary contact recreation (boating), fish and wildlife propagation, and outstanding natural resource water (Appendix B). Only primary and secondary recreation are fully supported. The only direct access for recreation is controlled by the landowner. Access from upstream or downstream for swimming or boating is possible. Temporary use of the extraction point will not interfere with the water body uses since only a hose or pipe will be placed in the river.

4.7 Ecological System Present

The existing flora on the river bank is hardwood and pine forest and other associated plants. There is an open pathway to the intake point. All equipment and discharge hoses will use the pathway. There is limited habitat for wildlife and there are presently periodic visits to the area by the landowner. The river supports limited aquatic species due to the shallow depth. No wetlands are present. The bank is eroded and vertical to the intake point. No erosion is expected and will be controlled by Best Management Practices (BMPs), if needed.

4.8 Fish and Wildlife in the Area

The listing of rare, threatened and endangered species (TES) from the DWF Natural Heritage Program indicates that the Inflated Heelsplitter is threatened and the Pallid Strugeon and Manatee are endangered species found in East Feliciana Parish. The Alabama Shad is listed as a federal candidate species. The Manatee is most likely not present due to shallow depths. The rare plants and animals will not be affected since there will be no vegetative clearing and a filter

screen will be attached to the pump intake to prevent taking of any aquatic species. As a precaution, the work area will be surveyed to identify and avoid any rare plant species prior to equipment placement. There are no TES in St. Helena Parish; the Alabama Shad is listed as a federal candidate species.

4.9 Botanical Elements

The area adjacent to the intake is an opening in the hardwood/pine forest with natural grasses and a vertical cut bank (Figure 7). No trees or vegetation will be cut or removed.

4.10 Geological Features

The surface geology of the intake point comprises Pleistocene high terrace deposits consisting of tan to orange clay, silt and sand with large amounts of basal gravel (Geologic Map of Louisiana, 1984). The bank elevation at the intake point is approximately 166 feet, North American Vertical Datum (NAVD). The elevation decreases to the river over 100 feet to approximately 154 feet, NAVD (Figure 3). To the east, the elevation remains the same across the floodplain to the east bank over a distance of approximately 600 feet.

4.11 Hydrological Features

The Amite River is a tributary in the Lake Pontchartrain Basin. The basin is bounded on the north by the Mississippi state line, on the west and south by the east bank Mississippi River levee, on the east by the Pearl River Basin, and on the southeast by Breton and Chandeleur Sounds. This basin includes Lake Borgne, Breton Sound, Chandeleur Sound, and the Chandeleur Islands. The northern part of the basin consists of wooded uplands, both pine and hardwood forests. The southern portions of the basin consist of cypress-tupelo swamps and lowlands and brackish and saline marshes. Elevations in this basin range from minus five feet at New Orleans to over two hundred feet near the Mississippi border.

The Amite River Drainage Basin (Appendix B) begins in southwest Mississippi, with headwaters spanning Lincoln, Franklin, Amite, and Wilkinson Counties. The East and West Forks of the Amite River reach a confluence near the Mississippi/Louisiana state line. The main trunk of the Amite River then progresses south through East Feliciana, St. Helena, East Baton Rouge, Ascension, and Livingston Parishes, where it empties into Lake Maurepas.

The intake point on the west bank is the steep cut bank with approximately 15 feet of depth to the river bottom (Figure 7). The east side of the river is a sandy depositional bar (Figure 4).

4.12 Water Quality/Quantity

Segment LA04030100 is listed on the 303 (d) list of impaired water bodies due to mercury in fish tissue, total suspended solids and turbidity (Appendix B). The causes are atmospheric deposition of mercury and mine tailings. Extraction will not contribute to the impairment since mercury is not used and there will be no mining. Best management practices, such as silt fences and mats will be used to prevent sediment from entering the river if needed.

The projected volume needed for the well is 12,600,000 gallons at a rate of 1,050-3,360 gpm. The dimensions of the extraction point were measured on June 6, 2014 as follows:

Width (ft)	Water depth from bottom (ft)	Water Volume/foot (ft^2)
120	3	360

The velocity was measured with a MFP51 Stream Flowmeter. In addition, velocity and discharge data over the past 12 months were obtained from the USGS Darlington gauge graph approximately 1 mile downstream at Hwy. 10 (Appendix B). Average velocities over time at the Darlington gauge were obtained from the USGS *Technical Report 70, Low-Flow Characteristics of Louisiana Streams* (Appendix B).

	Velocity (ft/sec)	Discharge (ft^3/sec)	Discharge (gpm)
Flow Meter	2.5	900	403,920
Darlington Gauge June 6		1,000	448,800
Darlington Gauge (12-month Min.)		50	22,440
Darlington Gauge (12-month Max.)		20,000	8,976,000
TP 70 7Q10		206	92,452
TP 70 99%		208	93,350
Min. Pump Rate			1,050
Max. Pump Rate			3,360

The discharge at the intake is calculated by multiplying the water volume/foot of 360 ft^2 by the velocity. The TP 70 7Q10 flow is the lowest annual average flow for 7 consecutive days over a 10-year interval. The TP 70 99% is the flow rate that exceeds 99% of days.

The lowest measured discharge on June 6, 2014 was 403,920 gpm. The flow rate at the Darlington gauge on June 6, 2014 was 448,800` gpm (Appendix B). The ratio of the measured rate at the intake to the gauge is 90%. This ratio is then used to reduce the TP 70 99% rate to adjust it to the intake point, which results in 84,015 gpm. The minimum drawdown is based on the June 6, 2014 depth of 3 feet multiplied by the percentage of minimum and maximum drawdown.

Adjusted 99% (gpm)	Min. Flow Rate (gpm)	Max. Flow Rate (gpm	Min. % of 99% Discharge	Max. % of 99% Discharge	Min. Drawdown (ft)	Max. Drawdown (ft)
84,015	1,050	3,360	1.2	3.9	0.04	0.12

Therefore, the drawdown at the point of intake will be 0.04 to 0.12 feet, which will not prevent flow from continuing downstream. Figure 8 depicts the intake and Darlington Gauge locations in reference to the Amite drainage area.

5.0 LEGAL AGREEMENT

The signed legal agreement is in Appendix C.

6.0 COMPLIANCE HISTORY

The applicant has no regulatory or compliance history in Louisiana.

7.0 STEPS TO MINIMIZE IMPACTS

A site was chosen to minimize environmental impacts from vehicles and equipment. The intake is accessed by a developed pathway and there will be no impact to flora or fauna. There will be no impact to the Amite River from sediment since there will be no mining or earth clearing; however BMPs will be implemented if needed to prevent erosion and sediment into the river. The site was partially chosen because no wetlands will be affected. Threatened and

endangered aquatic species damage will be mitigated by the intake hose screen. The affected area will be surveyed for rare plant species and habitat and avoided if present.

The planned flow rates from the river are estimated to be 1.2-3.9% of the flow rate expected 99% of the time resulting in less than 0.12 feet of drawdown. The pumping will be from 2.8 to 8.3 days if pumped continuously. After removal of the equipment, the river access area and river will be restored to original condition prior to pumping.

8.0 PROJECT ALTERNATIVE

There are two sources of water in Louisiana: surface water and groundwater. Louisiana Water Resources Report dated March 15, 2012 encourages the use of abundant surface water over the use of high quality groundwater for hydraulic fracturing. Surface water from streams, ponds and lakes is the preferred alternative. For this project, water from the Amite River will be pumped into storage ponds and then into the well. The Amite River will naturally recharge over time from rainfall and springs. This section of the river, although it is a designated Scenic River, is relatively low quality, is impaired, is not used for fish and wildlife propagation and will not be affected except for temporary withdrawal. There will be no affect on recreation or wildlife. All water will be pumped and contained in hoses or ponds and water will not have to be transported via trucks, which increase traffic and safety hazards for the population, to the project area. Once the water is used, any flowback water will be contained, transported and disposed in an injection well.

9.0 SUMMARY

The proposed withdrawal of surface water from the Amite River will NOT:

- Affect the current land use
- Impact historical sites
- Interfere with the use of the property or nearby residents
- Interfere with recreational use
- Affect the aesthetic value of the river
- Permanently alter the natural ecological system
- Impact wetlands

- Significantly impact fish and wildlife
- Require use of high quality ground water
- Cause the water quality to change
- Significantly reduce the stream flow
- Draw down the river to a level that prevents flow
- Add unnecessary truck traffic to the community

State of Louisiana

BOBBY JINDAL
GOVERNOR

DEPARTMENT OF WILDLIFE AND FISHERIES

ROBERT J. BARHAM
SECRETARY

Dear Scenic River Permit Applicant:

Please review and concur on the following statement regarding the issuance of permits by the Louisiana Department of Wildlife and Fisheries. This agreement must be signed and returned before a Scenic River Permit can be issued.

"I have been advised and do understand that by applying for and accepting a Scenic Rivers permit issued by the Louisiana Department of Wildlife and Fisheries, I am being allowed to engage in an activity which would otherwise be prohibited by law or for which a permit is required. I understand that the permit is not a license and confers no property right upon me. I specifically agree to abide by all State and Federal fish and wildlife laws and regulations, and all State and Federal laws and regulations which relate to this permit or the permitted activity, and by all other terms and conditions of this permit. I understand that the permit for which I am applying may be suspended, annulled, withdrawn or revoked and that I may be assessed civil penalties, all in accordance with the provision of the Louisiana Administrative Procedure Act, and that I may be denied future permits as a consequence of my failure to fully and completely comply with the terms and conditions of the permit, as well as other laws and regulations pertinent thereto. If served with or notified of a cease and desist order signed by the Scenic Rivers Administrator, I agree to immediately and without delay cease all activities and operations which relate to the permitted activity or which are impacting the Scenic River, until such time as the matter can be resolved in an adjudicatory hearing pursuant to the Louisiana Administrative Procedure Act. I understand and agree that any permit issued to me by the Louisiana Department of Wildlife and Fisheries is in the nature of a privilege which is being voluntarily extended to me by the Department and the failure on my part to cooperate with the Department can result in the loss of the privilege conferred and the denial of future requests for permits. By accepting this permit, I evidence my agreement to be bound by all conditions and stipulations set forth herein."

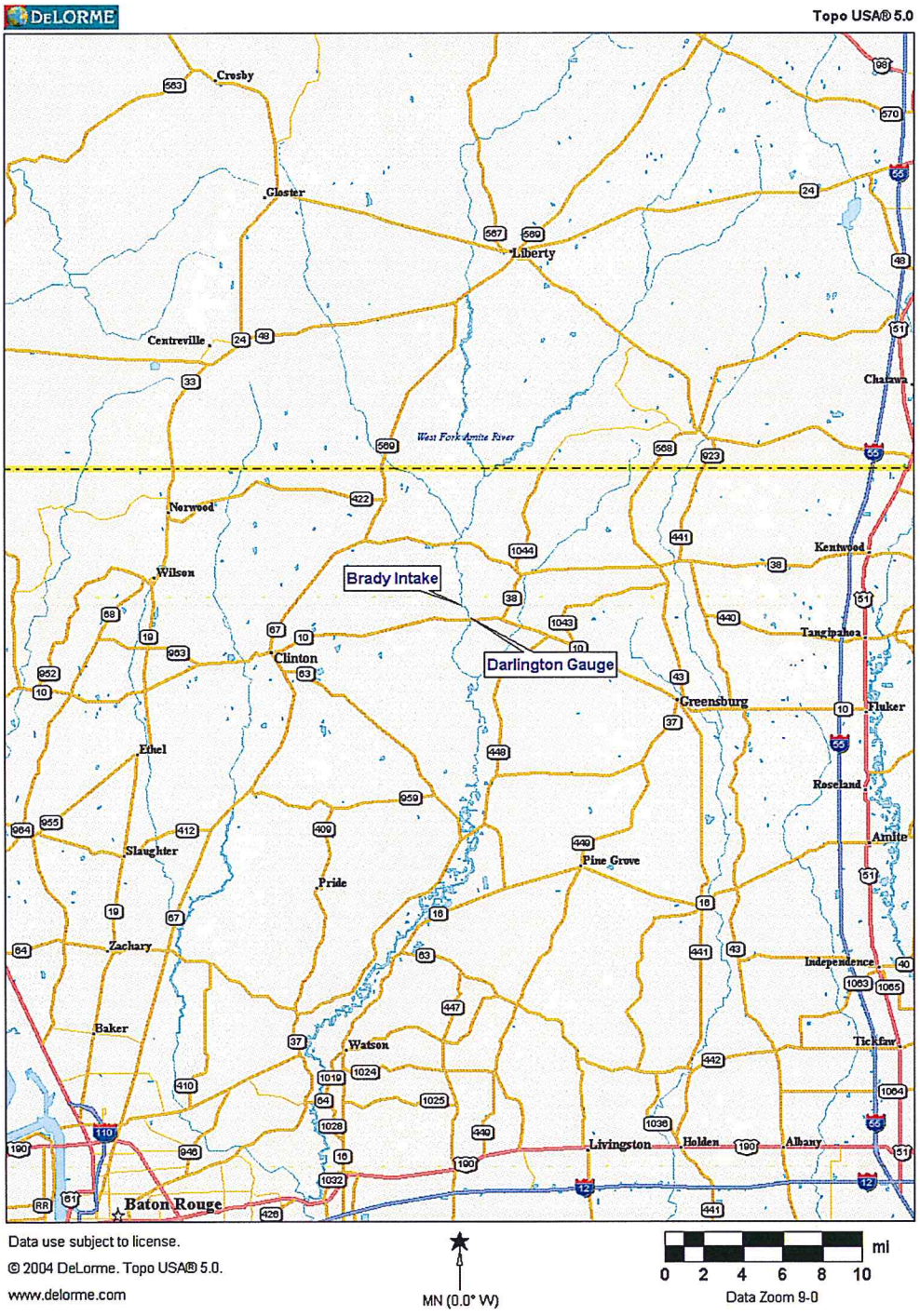
Authorized Signature

6/30/14
Date

REV. 12/7/98

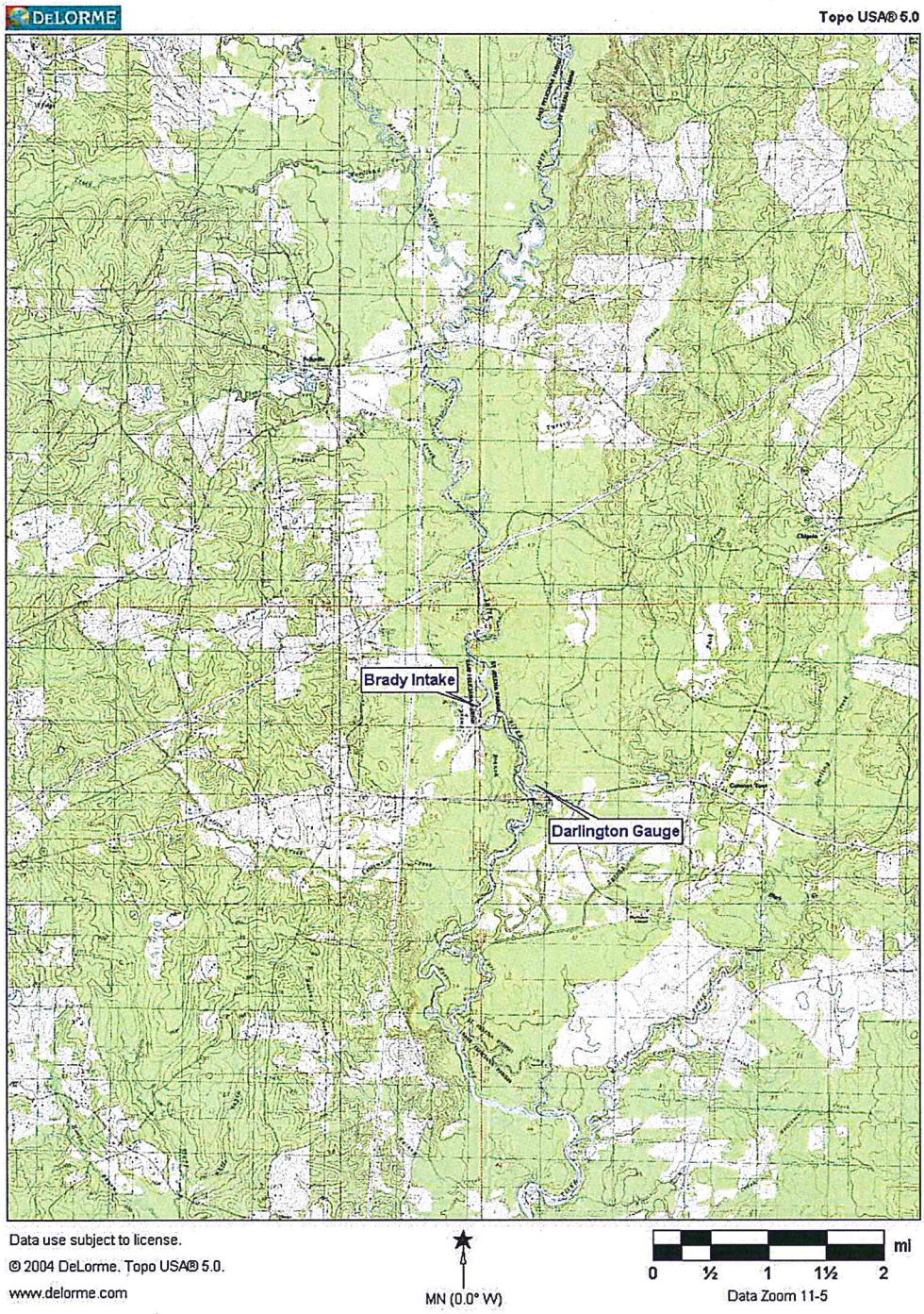
P.O. BOX 98000 • BATON ROUGE, LOUISIANA 70898-9000 • PHONE (225) 765-2800
AN EQUAL OPPORTUNITY EMPLOYER

Figure 1. Regional Location Map



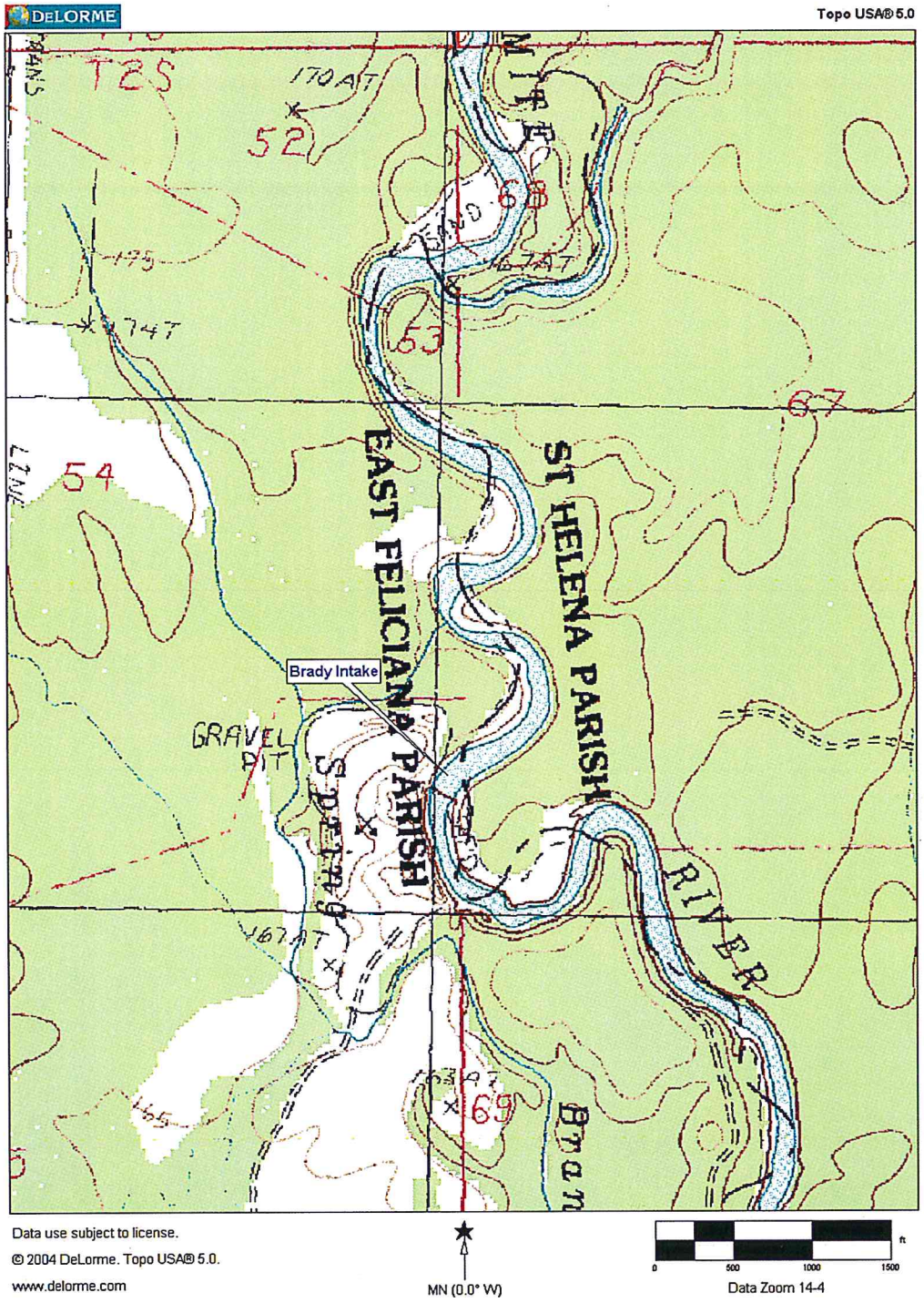
EcoScience Resource Group, L.L.C.

Figure 8. Amite River Drainage Area



EcoScience Resource Group, L.L.C.

Figure 3. Topographic Map



EcoScience Resource Group, L.L.C.

Figure 2. Aerial Photograph

= Discharge Direction

EcoScience Resource Group, L.L.C.

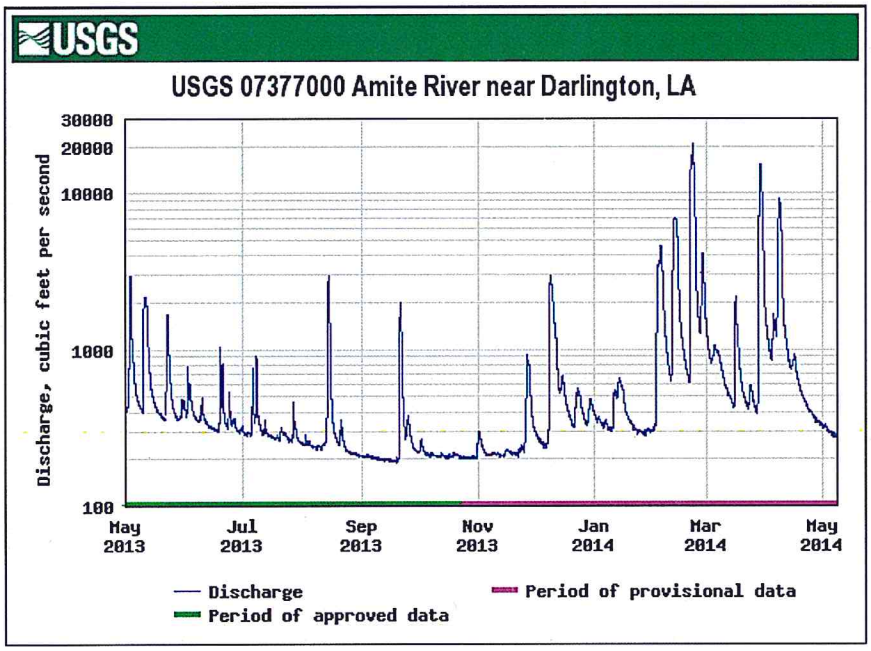
Figure 4. View of the Amite River intake and east bank from the west bank.

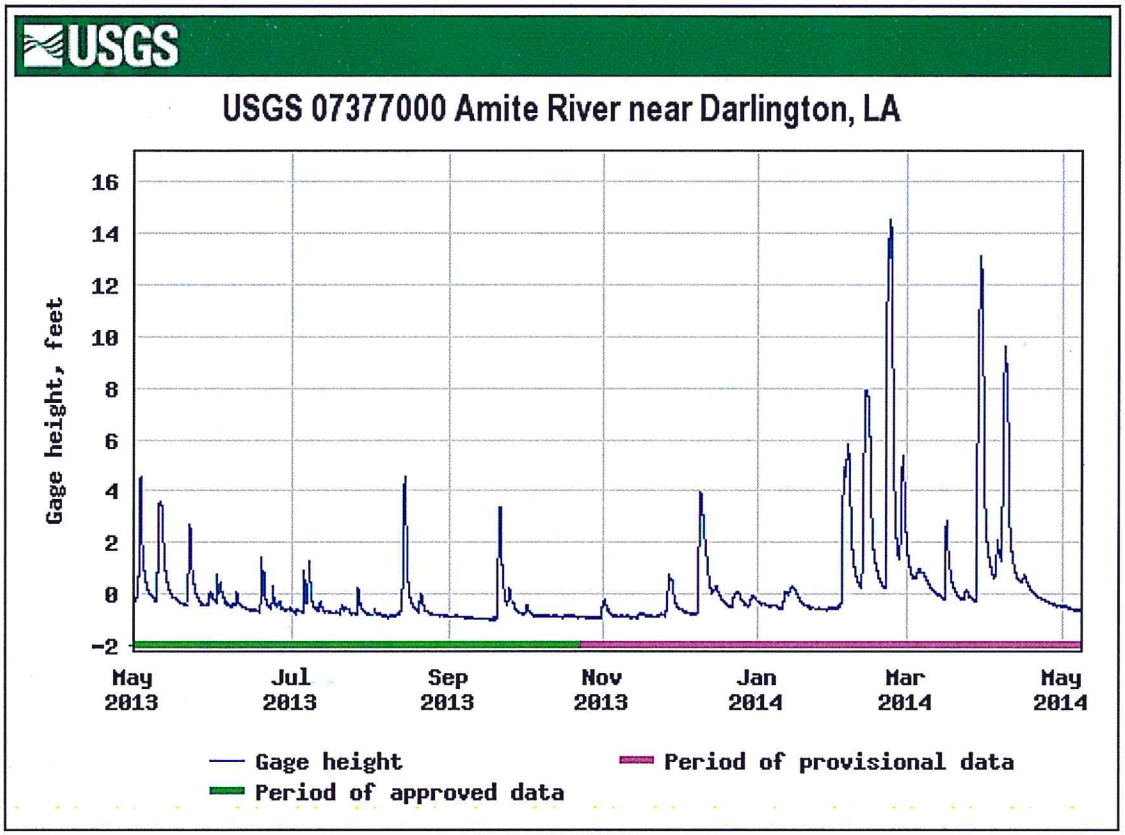
Figure 5. View downstream (south) from the intake.

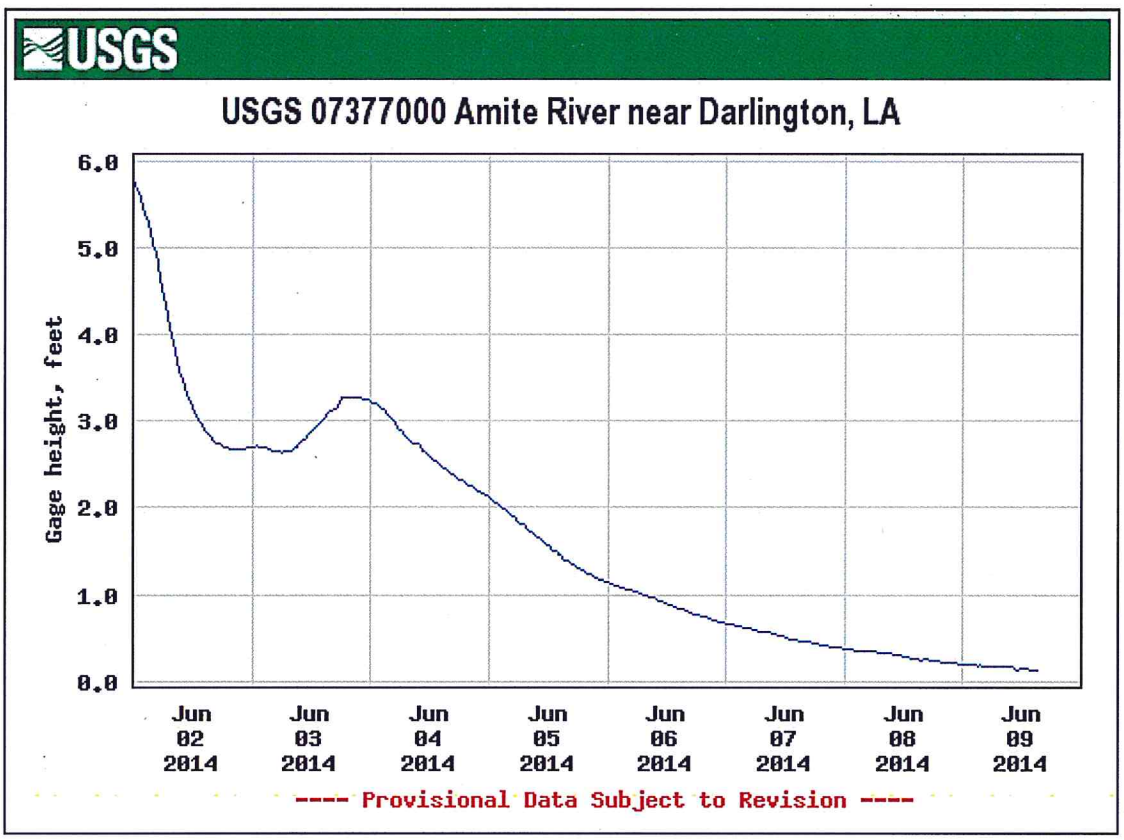
Figure 6. View upstream (north) from the intake.

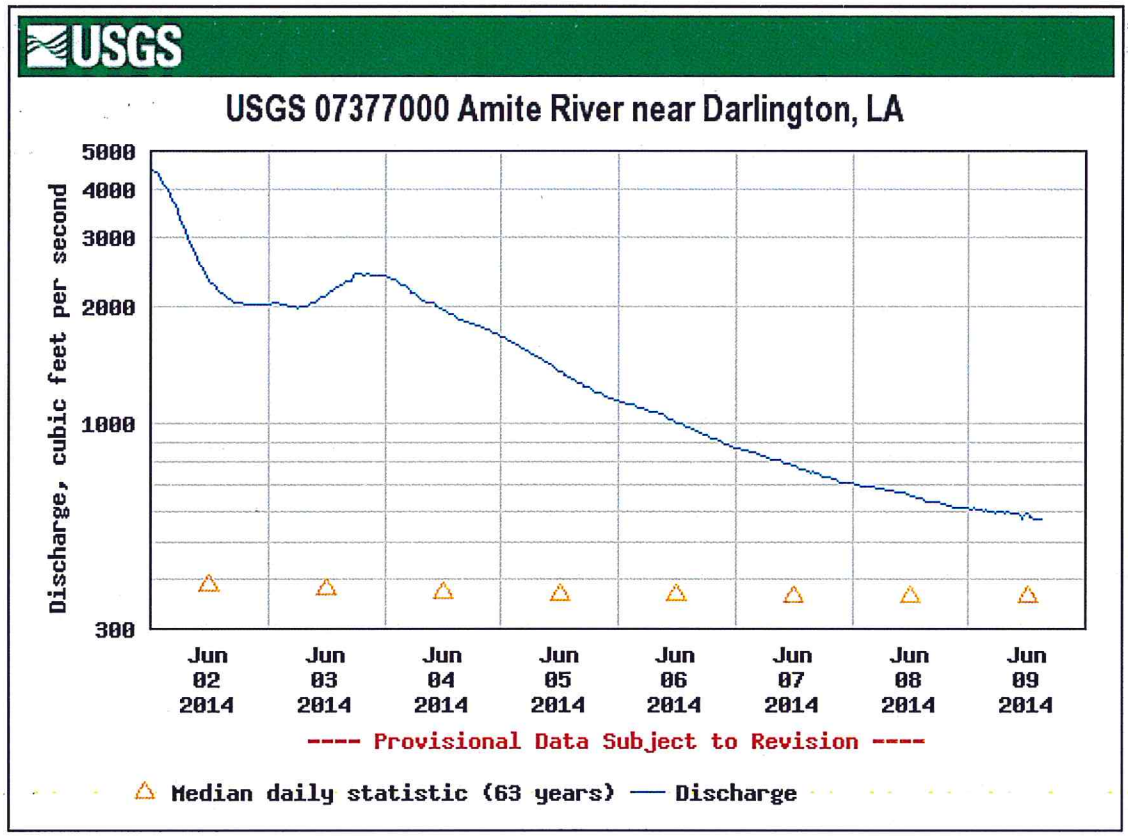
Figure 7. View of the west bank from the intake point.

Use support codes under Designated Water Body Uses: F=Fully supporting designated use; N=Not supporting designated use; I=Insufficient data to make reliable determination; X=No data																		
				Designated Water Body Uses														
Subsegment Number	Subsegment Description	Type	Size	PCR	SCR	FWP	DWS	ONR	OYS	AGR	LAL	Follow-up Data Comments	Impaired Use for Suspected Cause	Suspected Causes of Impairment	IR Category for Suspected Causes	TMDL Due Date	TMDL Priority	Suspected Sources of Impairment
LA040301_00	Amite River-From Mississippi state line to La-37 (Scenic)	R	30	F	F	N		N				CTM Full:Lead	FWP	Mercury in Fish Tissue	IRC 5	TBD	L	Atmospheric Deposition - Toxics
LA040301_00	Amite River-From Mississippi state line to La-37 (Scenic)	R	30	F	F	N		N				CTM Full:Lead	FWP	Mercury in Fish Tissue	IRC 5	TBD	L	Source Unknown
LA040301_00	Amite River-From Mississippi state line to La-37 (Scenic)	R	30	F	F	N		N				CTM Full:Lead	ONR	Total Suspended Solids (TSS)	IRC 5	2012	H	Mine Tailings
LA040301_00	Amite River-From Mississippi state line to La-37 (Scenic)	R	30	F	F	N		N				CTM Full:Lead	ONR	Turbidity	IRC 5	2012	H	Mine Tailings


USGS
USGS 07377000 Amite River near Darlington, LA
Discharge, cubic feet per second
30000
20000
10000
1000
100
May 2013
Jul 2013
Sep 2013
Nov 2013
Jan 2014
Mar 2014
May 2014
Discharge
Period of approved data
Period of provisional data


USGS
USGS 07377000 Amite River near Darlington, LA
Gage height, feet
16
14
12
10
8
6
4
2
0
-2
May 2013
Jul 2013
Sep 2013
Nov 2013
Jan 2014
Mar 2014
May 2014
Gage height
Period of approved data
Period of provisional data


USGS
USGS 07377000 Amite River near Darlington, LA
Gage height, feet
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Jun 02 2014
Jun 03 2014
Jun 04 2014
Jun 05 2014
Jun 06 2014
Jun 07 2014
Jun 08 2014
Jun 09 2014
---- Provisional Data Subject to Revision ----


USGS
USGS 07377000 Amite River near Darlington, LA
Discharge, cubic feet per second
5000
4000
3000
2000
1000
300
Jun 02 2014
Jun 03 2014
Jun 04 2014
Jun 05 2014
Jun 06 2014
Jun 07 2014
Jun 08 2014
Jun 09 2014
---- Provisional Data Subject to Revision ----
Median daily statistic (63 years)
Discharge

USGS
science for a changing world

National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information | Geographic Area: United States | GO

Click to hide News Bulletins

- April 18, 2014 - We have made changes to our code that correct the 502 gateway error when using AT&T.
- Read the Mobile Site Tutorial Try it (http://m.waterdata.usgs.gov) from your mobile device!
- Full News

USGS 07377000 Amite River near Darlington, LA

Available data for this site SUMMARY OF ALL AVAILABLE DATA | GO

Stream Site

DESCRIPTION:

Latitude 30°53'20", Longitude 90°50'40" NAD27
St. Helena Parish, Louisiana, Hydrologic Unit 08070202
Drainage area: 580.00 square miles
Datum of gage: 145.81 feet above NGVD29.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count

Table 2. Low-flow characteristics for continuous-record streamflow-gaging stations having 10 or more years of record—Continued

07377000 Amite River near Darlington, La. (74)

LOCATION.--Lat 30°53′20″, long 90°50′40″, in sec. 72, T. 2 S., R. 4 E., St. Helena Meridian, St. Helena Parish, near center of span on downstream side of bridge on State Highway 10, 1.5 mi upstream from Collins Creek, and 4.0 mi west of Darlington.

DRAINAGE AREA.--580 mi^2.

PERIOD OF RECORD.--October 1950 to September 1999.

MEAN-DAILY MINIMUM FLOW.--188 ft^3/s.

REMARKS.-- Significant trend.

Lowest annual average flow, in ft^3/s, for the indicated number of consecutive days and recurrence interval

Days									
1	3	7	10	14	20	30	60	120	183
2-year recurrence interval									
245	248	250	252	256	262	271	296	349	409
5-year recurrence interval									
215	217	219	221	224	228	235	252	284	319
10-year recurrence interval									
203	204	206	208	210	214	220	233	257	284
20-year recurrence interval									
194	195	197	198	201	205	209	220	238	260

Lowest average flow, in ft^3/s, for the indicated season, number of consecutive days, and recurrence interval

March-May			June-August			September-November			December-February		
Days											
1	7	14	1	7	14	1	7	14	1	7	14
2-year recurrence interval											
330	349	369	268	281	295	248	254	263	325	363	413
10-year recurrence interval											
254	265	277	214	223	232	205	209	215	242	254	275
20-year recurrence interval											
238	247	261	202	209	218	196	200	204	224	230	247

Flow, in ft^3/s, which was exceeded for the indicated percentage of days

Percentage of days								
1	5	10	25	50	75	90	95	99
9,990	3,350	1,700	759	440	312	261	236	208


67
10
10
19
16
61
67
Denham
Springs
190
12
Baton
Rouge
10
16
10
61
Gonzales